

Introduction to 4GL Development Environment

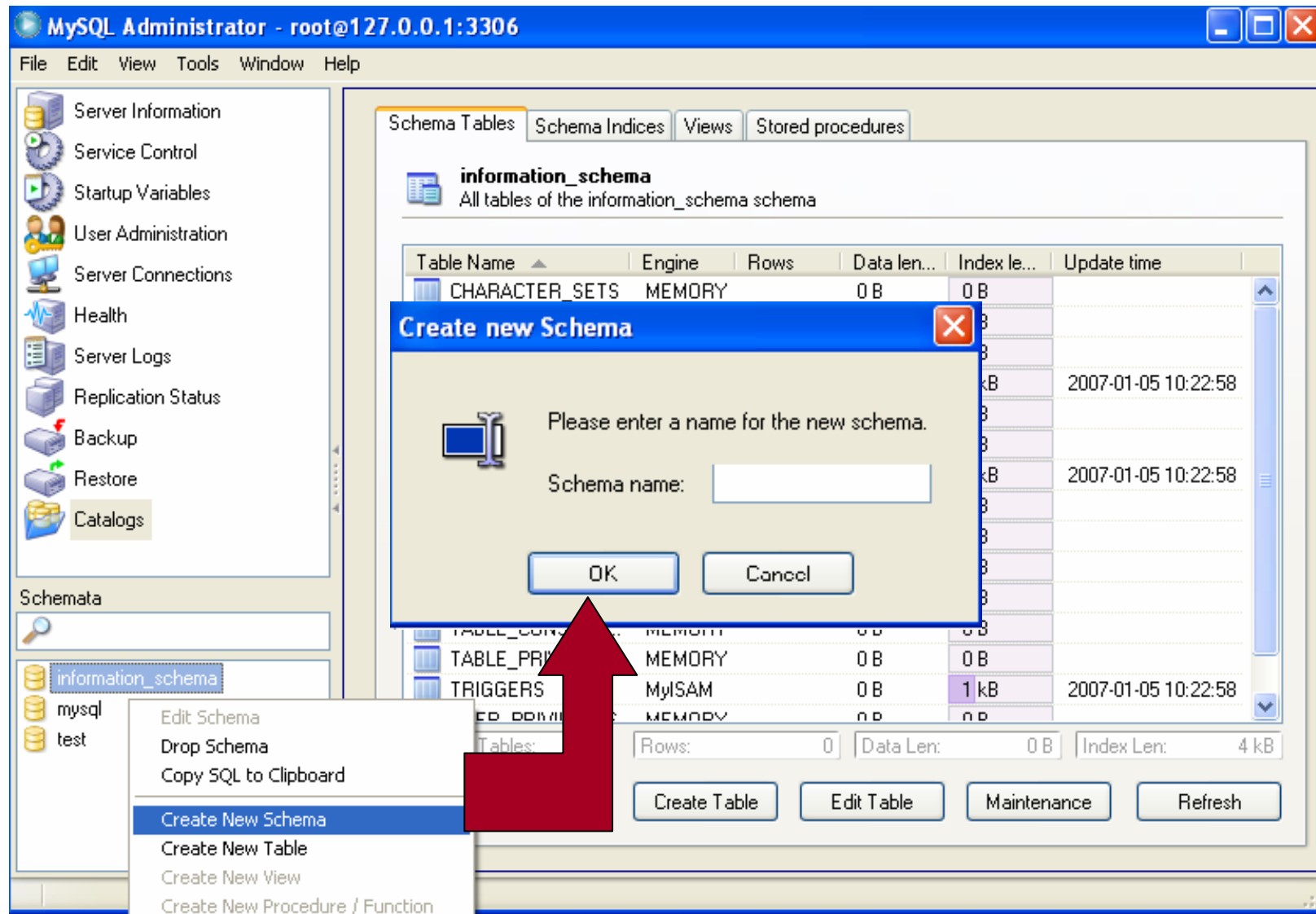
Part : 2

Duration : 06hrs

Creating Databases and Tables; Creating and using Forms, Queries and Reports

MySQL and MS Access Examples

- Creating a new database using MySQL
 - right-click on an existing database and choose the Create New Schema option.



- Example: The following relations are part of a Hospital relational database schema.

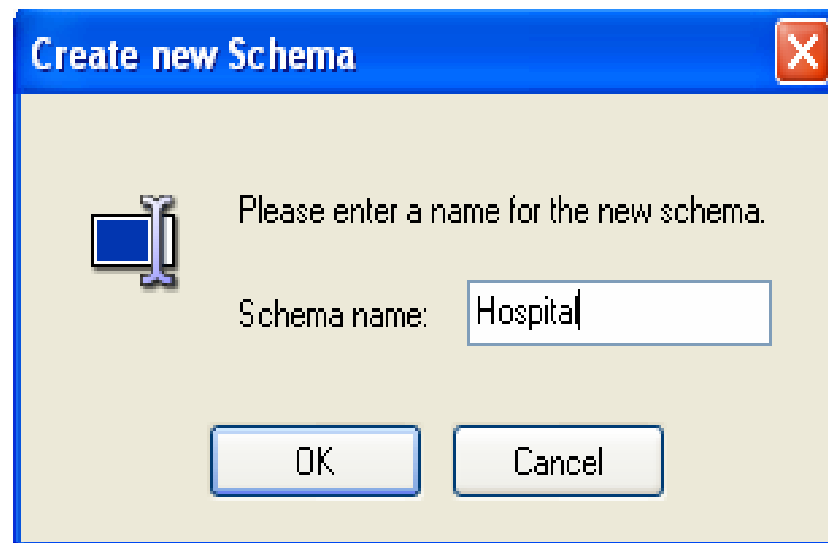
Patient (patientCode, pname, dob, address, sex, telephone)

History (patientCode, treatmentDate, drug, dosage, quantity, instructions)

Treatment (patientCode, treatmentDate, doctor, cost)

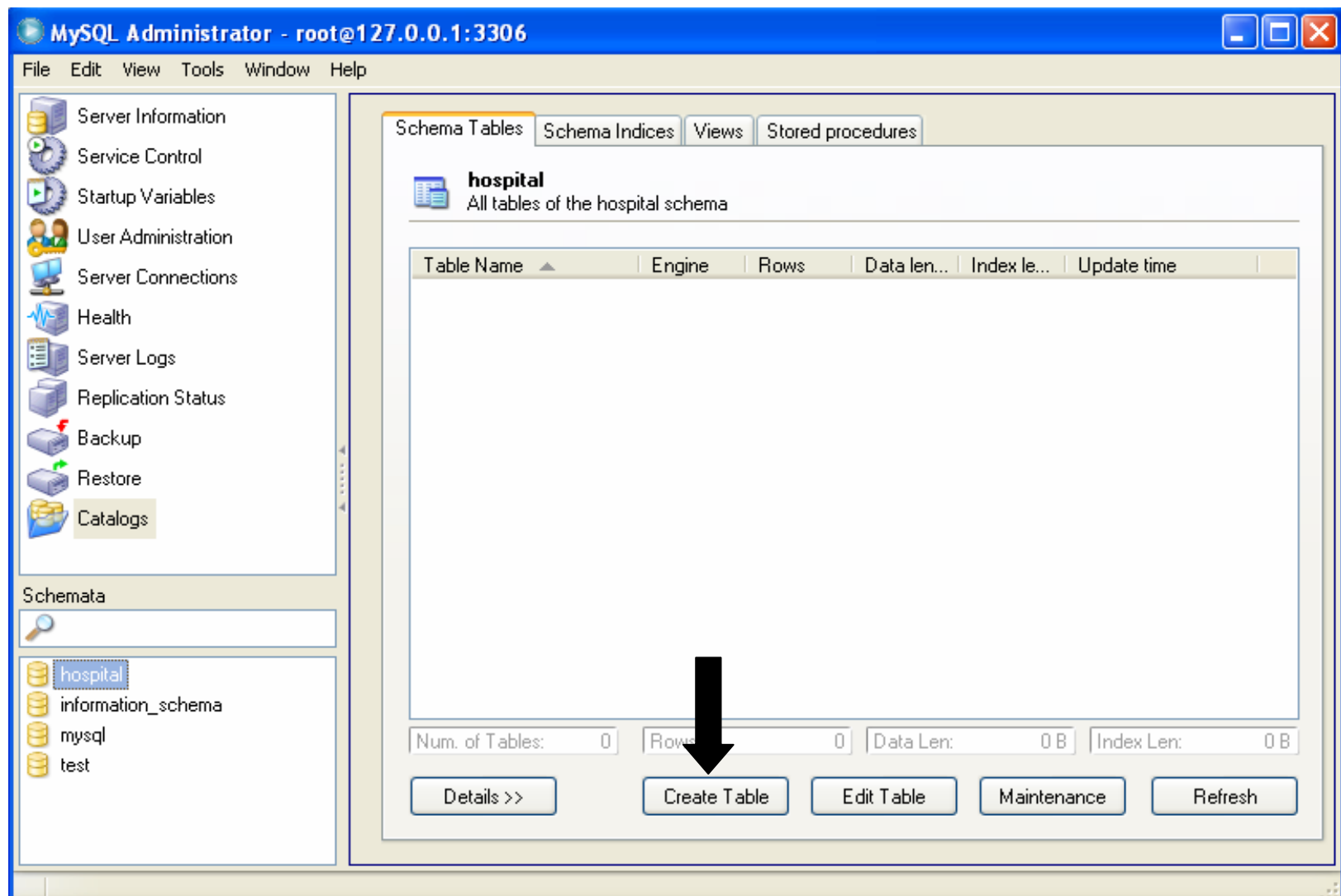
Medicine (drug, dosage, unit-cost)

Suppose that all the relations were created by the database administrator.

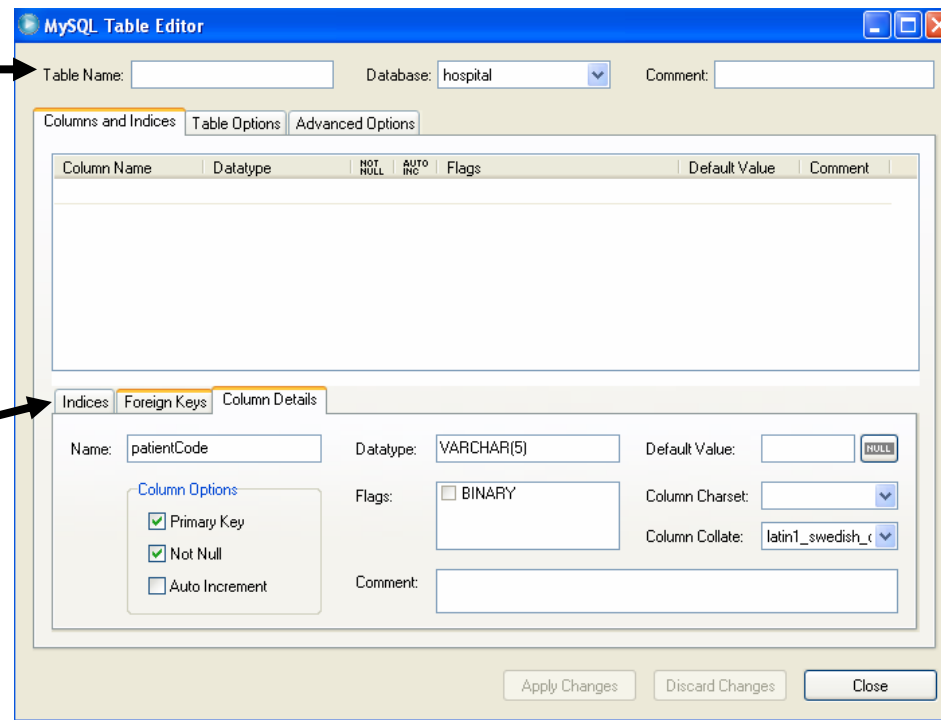


Type in the name of the schema on the text box and click on the OK button to create the new database.

- Creating tables
 - Select the appropriate database from the list of Schemata
 - The following screen will appear on the right side of the window
 - Click on the 'Create Table' button to create a new table.



Name of the
table



Column details
can be provided
on this space.

- The tabbed area is divided into three sections:
 - *Columns and Indices*: Use the Columns and Indices tab to create and modify the table's column and index information. You can also create FOREIGN KEY relationships using this tab.
 - *Table Options*: Use the Table Options tab to choose the storage engine and default character set used by the table.
 - *Advanced Options*: Use the Advanced Options tab to configure options such as the per-table storage directory, MERGE and RAID table options, and table/row length options.

- **Example**

Table Name: Patient Database: hospital Comment:

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
patientCode	VARCHAR(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BINARY		
pname	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		
dob	DATE	<input type="checkbox"/>	<input type="checkbox"/>			
address	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		
sex	CHAR	<input type="checkbox"/>	<input type="checkbox"/>	BINARY ASCII UNIC		
telephone	VARCHAR(15)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		

Indices Foreign Keys Column Details

Name: dob Datatype: DATE Default Value: [] [NULL]

Column Options: ☐ Primary Key ☐ Not Null ☐ Auto Increment

Flags: Column Charset: Default Column Collate: Default

Comment:

Apply Changes Discard Changes Close

Click on 'Apply changes' button

Are you sure you want to execute the following SQL command to apply the changes to the table?

```
CREATE TABLE `hospital`.`Patient` (
  `patientCode` VARCHAR(5) NOT NULL,
  `pname` VARCHAR(45),
  `dob` DATE,
  `address` VARCHAR(45),
  `sex` CHAR,
  `telephone` VARCHAR(15),
  PRIMARY KEY(`patientCode`)
) ENGINE = InnoDB;
```

Execute Cancel

MySQL Administrator - root@127.0.0.1:3306

File Edit View Tools Window Help

Schema Tables Schema Indices Views Stored procedures

hospital
All tables of the hospital schema

Table Name	Engine	Rows	Data len...	Index le...	Update time
patient	InnoDB	0	16 kB	0 B	

Num. of Tables: 1 Rows: 0 Data Len: 16 kB Index Len: 0 B

Details >> Create Table Edit Table Maintenance Refresh

Finally close the window

Table Name: Patient Database: hospital Comment: InnoDB free: 4096 kB

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
patientCode	VARCHAR(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BINARY		
pname	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		
dob	DATE	<input type="checkbox"/>	<input type="checkbox"/>			
address	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		
sex	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY ASCII UNIC		
telephone	VARCHAR(15)	<input type="checkbox"/>	<input type="checkbox"/>	BINARY		

Indices Foreign Keys Column Details

Name: patientCode Datatype: VARCHAR(5) Default Value: [] [NULL]

Column Options: ☒ Primary Key ☒ Not Null ☐ Auto Increment

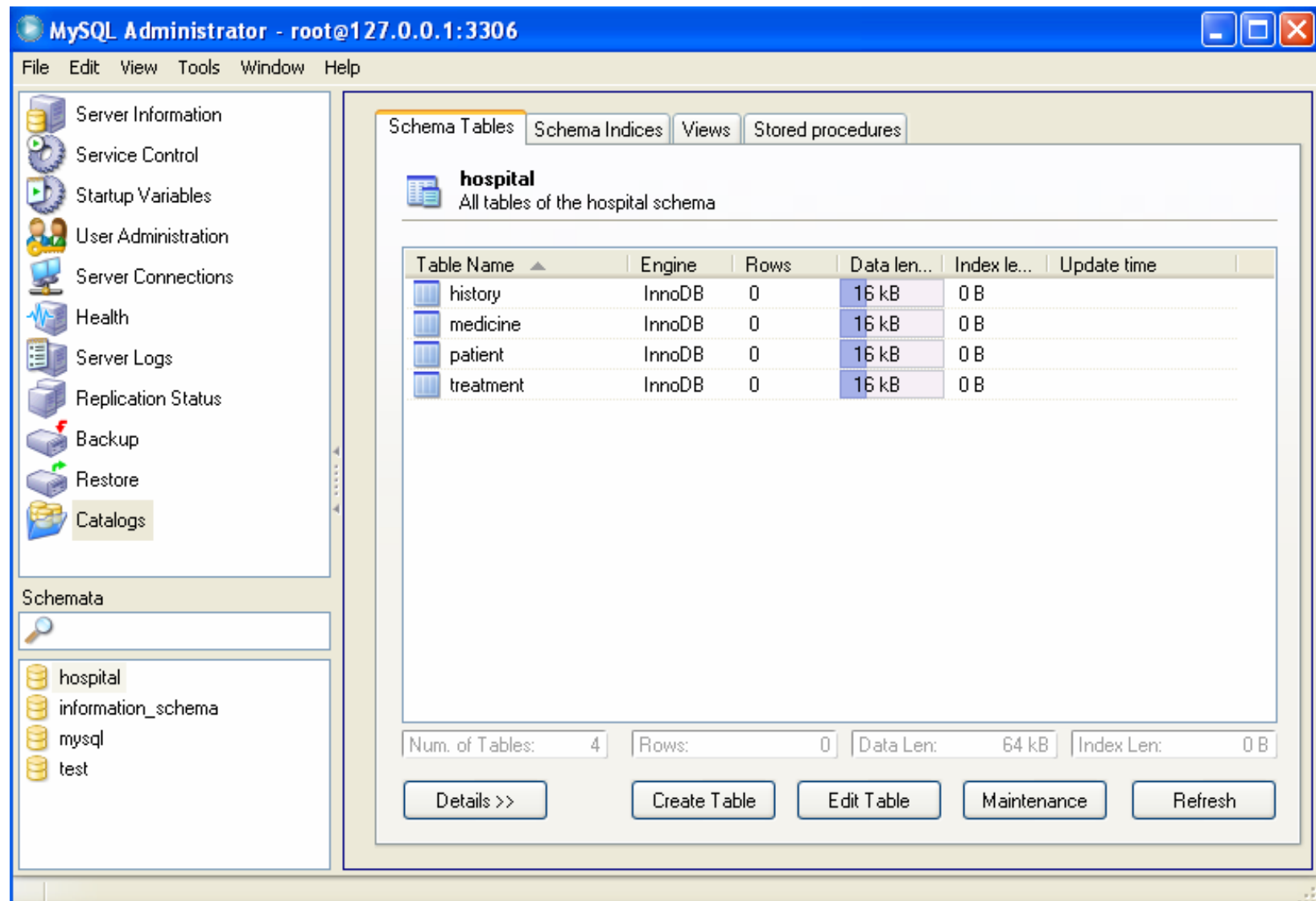
Flags: Column Charset: latin1 Column Collate: latin1_swedish_ci

Comment:

Apply Changes Discard Changes Close

Click on 'Execute'

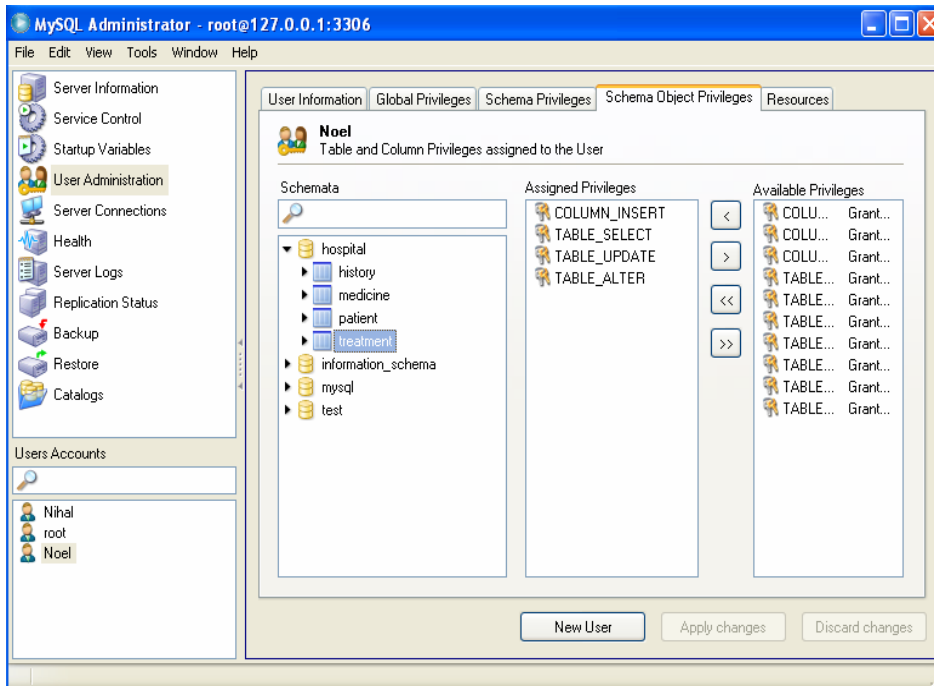
- After creating all the tables for the Hospital relational database schema, you will get the following window.



- Example: Suppose the DBA (root user) needs to grant the following privilege to user account 'Noel'

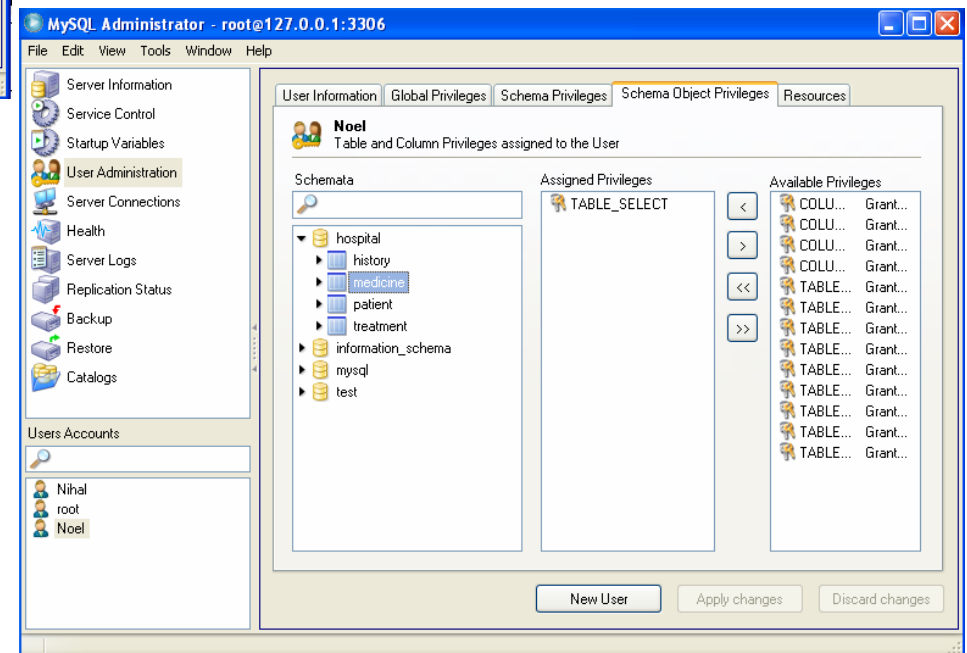
- Account Noel can
 - retrieve or modify *Treatment* relation

- ❖ Select the user 'Noel'
- ❖ Double click on the Hospital Schemata
- ❖ Select the Table '*Treatment*'
- ❖ Grant the privileges 'TABLE_SELECT', 'TABLE_UPDATE', 'TABLE ALTER', 'COLUMN_INSERT'
- ❖ Click on the 'Apply Changes' button



- retrieve all the attributes of Medicine relation

- ❖ Select the user 'Noel'
- ❖ Double click on the Hospital Schemata
- ❖ Select the Table '*Medicine*'
- ❖ Grant the privilege 'TABLE-SELECT'
- ❖ Click on the 'Apply Changes' button



- Retrieve all the attributes of Patient relation except for dob and address.

- ❖ Select the user 'Noel'
- ❖ Double click on the Hospital Schemata
- ❖ Double click on the Table 'Patient'
- ❖ Grant the privilege 'COLUMN-SELECT' for each column one by one except for the dob and address
- ❖ Click on the 'Apply Changes' button

